

**BROOK TROUT MANAGEMENT PLAN**



**DEPARTMENT OF INLAND FISHERIES AND WILDLIFE  
DIVISION OF FISHERIES AND HATCHERIES**

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## BROOK TROUT LIFE HISTORY

The brook trout (*Salvelinus fontinalis*) has historically been the most abundant and ubiquitous coldwater game fish occurring in Maine and remains so today despite reductions in brook trout habitat that have occurred since settlement of the state by Europeans began. The brook trout's basic requirements are cool, well-oxygenated water and suitable spawning, nursery, and adult habitat. As long as water temperatures do not exceed about 68° F for extended periods and oxygen levels remain at 5 ppm or greater, brook trout can usually survive and grow. Brook trout may spend part or all of their lives in habitats ranging from the smallest brook to the largest of lakes, provided that the habitat is suitable and competition from other fish is not excessive. In addition, they are capable of spending the adult portion of their lives in marine or brackish waters, and populations of brook trout are found in some of Maine's estuaries.

The species is extremely vulnerable to the effects of predation and competition from other fishes, particularly in the first year or two of life. After attaining a length of about 10 inches, however, trout will feed heavily on other small fishes. There is evidence that larger brook trout may be very effective predators on their own young in certain circumstances. In waters where forage fish are not available to adult trout, they are still capable of good growth rates on a diet of invertebrates if the habitat is productive.

Brook trout are capable of extremely diverse growth rates, which are primarily dependent on such environmental factors as water temperature and food abundance. A five-year-old brook trout may weigh less than two ounces in waters with poor growth conditions. At the other extreme, a trout of the same age may weigh four or five pounds if growth conditions are ideal. Brook trout are generally short-lived, with relatively few survivors beyond three years of age. A few individuals may attain ages of four to six years, but rarely more. For stocked populations, the life span is typically even shorter, with few individuals surviving beyond two years. However, recent efforts to extend the life span of hatchery-reared brook trout through the rearing of eggs taken from wild fish have been successful, and progeny of these fish have lived to age four to date.

Brook trout normally spawn in the flowing waters of brooks or streams in the fall, usually late September to November. In Maine, spawning occurs the earliest in high-elevation waters. Water moving through the gravel prevents the buried eggs from freezing and provides them with oxygen. Shore spawning is successful in some ponds where spring-water inflows occur in gravelly shallows. Survival of shore-spawned trout may be poor if protective cover for emerging fry is not available. Smelt are especially voracious predators of brook trout fry under these conditions. Brook trout eggs hatch in the early spring after over-wintering in the gravel substrate. Young fish use cover for protection from predators and move to the deeper water that serves as adult habitat when they attain greater size.

Brook trout are highly catchable and their numbers are therefore easily reduced by overfishing, especially in the smaller ponds and in streams that have easy angler access. They are, however, very resilient in good habitat, and their numbers can quickly rebound to former abundance under adequate regulatory protection. Furthermore, recent studies indicate that Maine's wild brook trout populations have not been genetically compromised due to excessive harvest by angling of the older mature fish.

## **BROOK TROUT MANAGEMENT HISTORY**

This species has always served as a food fish, and systematic exploitation of Maine's brook trout populations as a sports fish began in the latter 1800's, when sporting camps flourished by catering to sportsmen in search of superior fishing for brook trout and other gamefish common to the state. Records of the period mention trophy trout of two to six pounds fairly regularly, and a few fish ranged to nine pounds. It appears, however, that where large fish were caught they were not abundant. High numerical catches were of sizes comparable to present-day standards. Angling pressure was relatively light, compared to current standards, well into the early 1900's. As the number of anglers increased and more backcountry roads were constructed, angling pressure increased over the years to current levels.

Nearly all of the State's inland waters were originally suited for brook trout. This situation began to change as timber harvesting became increasingly widespread in the 1800's, accompanied by increases in human population growth, industrialization, and agriculture. Forestry practices such as dam and road construction, river drives of raw wood, and harvesting along shoreline riparian zones led to the destruction of trout habitat. More recently, the indiscriminate use of large mechanized equipment has resulted in the degradation of brook trout habitat through erosion, siltation, and the loss of cover and habitat. Similar losses occurred early in the State's history through widespread clearing for agricultural purposes, especially in the southern and central portions of the state. Loss of habitat as a result of industrial pollution increased in the nineteenth century and continued well into the twentieth century. Efforts to reduce industrial and municipal pollution have resulted in improved water quality and restoration of habitat in some of the major rivers. The imposition of environmental regulations designed to protect natural resources have also resulted in added protection of brook trout habitat in the commercial woodlands of the state. Some forestry companies have voluntarily exceeded regulatory standards in order to protect fisheries resources; indeed, in recent years some commercial landowners have partnered with the Department to restore degraded fisheries habitat.

Scientific brook trout management began with the formation of the Fisheries Research and Management Division in 1951. Prior to this date, the Department's Commissioners authorized occasional management activities, including stockings. The earliest scientific evaluation of brook trout populations in Maine was conducted by William C. Kendall of the Bureau of Fisheries, U.S. Dept of Commerce, in 1918. His report - specific to the Rangeley Lakes area in western Maine - discussed the physical features and species composition and abundance of these important brook trout waters. In addition, Dr. Kendall compiled records of brook trout harvests from previous documents dating back to the mid-1800's in which individuals weighing up to 12.5 lb. were recorded. The first systematic fishery survey of statewide significance was conducted by Gerald P. Cooper, Assistant Professor of Zoology at the University of Maine. In a series of reports published from 1940-45, Dr. Cooper and his colleagues reported findings on the fisheries of the Rangeley chain of Lakes, the lower Androscoggin and Kennebec drainage systems, Moosehead Lake, and Haymock Lake. Of particular value for brook trout management were the age and growth data for lightly exploited populations.

Programs to systematically survey brook trout habitat and conduct research projects to provide guidance for the statewide management of this species were implemented soon after the Fisheries Division was established. These research projects included several investigations into the life history of lake and stream populations of both wild and stocked populations.

Efforts to intensively manage the brook trout sports fishery increased with angler use and concern for the welfare of the species. Increasingly restrictive regulations - in the form of bag limits, minimum length limits, and gear restrictions - have been imposed over the years. The first fly-fishing-only restrictions were imposed on individual waters in the Rangeley and Moosehead areas near the turn of the twentieth century. However, there was no general-law bag limit on trout as late as 1910. At that time there was a 25-pound limit and a 5-inch minimum length limit. As of 1920 there was a 25-trout limit, a 15-pound limit, and a 6-inch minimum length limit. The bag limit for brook trout in lakes has been gradually reduced from 25 fish in 1950 to the current limits of 5 in northern Maine and 2 in southern Maine. In addition, categories of standardized special regulations, including bag and length limits, were implemented in 1996 to account for the variability in growth rates among trout waters and to standardize special brook trout regulations, thereby simplifying a confusing array of special regulations.

Hatchery-reared fish are used to provide a fishery where adult habitat is present but spawning and/or nursery habitat are lacking. Artificial propagation has played a significant role in the management of Maine's brook trout for many years. The first state fish hatchery was constructed in 1895 following a decade of private efforts to hatch and stock trout fry. With the development of additional public hatcheries and rearing stations and the improvement of transportation systems, brook trout stocking gradually increased throughout the state and reached an annual level of one million fish, but has since declined to approximately 600,000 fish per year as a result of improved fish quality and stocking techniques. Today the majority of Maine's brook trout are stocked on a biological basis at the recommendation of fishery managers. The size of the fish at stocking is determined by the quantity and quality of the habitat and the extent of competition from other fish species. A small portion of the brook trout stocking is done on a non-biological or "put-and-take" basis. In these situations, catchable-size trout are typically stocked in waters near population centers to provide immediate angling opportunity with little expectation of holdover due to habitat limitations. Special regulations are frequently imposed on stocked brook trout waters to assure survival of fish to maturity and escapement to larger sizes. Stocking rates, determined from a policy developed by fishery managers, take into account water size, water quality, interspecific competition, and angler use.

In the 1990's the Department undertook a program to improve its brook trout brood stock. New strains are being developed from wild fish with the goal of producing progeny that retain wild-fish characteristics including greater longevity. Because these strains may grow and behave differently from the more domesticated strains previously stocked, future adjustments in stocking rates may be necessary. Comparative performance studies of the Kennebago and Sourdnhunk strains were recently conducted; results to date indicate that the longevity of both new strains far exceeds that of the older, domestic strains. However, the new strains grow at a slower rate and there is concern on the part of some managers that they will not provide the size quality that anglers of stocked waters have become accustomed to. To that end, a study involving performance evaluation of paired stockings of crosses between the wild and domestic strains is underway. Furthermore, the Kennebago strain performed better both in the hatchery and in the wild and was chosen over the Sourdnhunk strain, which has been discontinued.

The removal of introduced competing warmwater fish species from trout waters by means of chemical reclamation began in 1939. Since that time, about 140 trout ponds have been reclaimed, usually with good – if temporary - results. Due to the expense of the chemical and changing public sentiment, the reclamation program is currently conducted at a modest level. Reclamation remains an especially valuable tool in eradicating illegally introduced fish species before they spread throughout drainages.

The introduction and spread of competing fish species has had substantial impact on the quantity and quality of Maine's brook trout resource. The chain pickerel, a voracious predator, was introduced to Maine in 1818 and by 1850 was well established in many trout waters. More recently, northern pike and muskellunge have been introduced into several drainages where they continue to expand their range. The smallmouth bass had reached its approximate current coastal distribution by the early 1900's, but continues to be illegally introduced into inland drainages; the rate of illegal bass introductions has increased in recent decades, and is a source of concern for brook trout fisheries. White perch and yellow perch, both severe competitors with brook trout, became widespread during the late 1800's. These species remain an active threat, as exemplified by their invasion of the Moosehead Lake drainage, the Rangeley Lakes, and the Fish River Chain of Lakes by yellow perch in the 1950's and 1960's. The often inadvertent spread of white suckers and a number of minnow species caused still further loss, and remains a chronic problem to this day because of their extensive use as live bait. Introductions of smelts, landlocked salmon and lake trout were made into many waters that originally harbored only brook trout, but the extent of their effect on trout remains unknown.

Maine's wild brook trout populations are recognized for their genetic and aesthetic values and efforts to protect them through the imposition of special regulations have recently been expanded. Department policy now formalizes past Fishery Division guidelines by preventing the stocking of hatchery-reared fish in waters with thriving wild populations unless these waters have previously been stocked. In the 1990's the Department initiated studies to determine the abundance, longevity, rates of harvest, and genetic variability of wild trout populations. More recently, detailed stream surveys have been conducted in an effort to determine more accurately the relationship between stream habitat types and brook trout abundance. It is anticipated that these efforts will be continued into the future to gain additional information. Wild trout populations, once largely taken for granted, are now recognized for their biological, economic, and aesthetic value.

Over the past 50 years, significant advances in knowledge and management expertise have been made relating to Maine's brook trout populations. This knowledge enabled sound and rational management programs for brook trout under historical levels of angler use. However, increasing angler demand for and utilization of brook trout, coupled with stagnant or decreasing funding levels for management (notably, staffing reductions of the Fishery Division's research biologists), are necessitating innovative approaches to brook trout management. For example, the Fishery Division recently developed a set of standardized regulations intended to prevent overharvest, protect genetically important older wild fish, and increase the carry-over of a portion of stocked fish to larger sizes. In the absence of pure research, brook trout data are also being consolidated on computerized statewide databases, which will be used to monitor trends in the fishery. Finally, the Department recognizes and supports the evolving angler ethic regarding the voluntary release of legal-size fish. These changing attitudes, together with the preservation of habitat through reasonable environmental regulations and intensive management efforts, bode well for the brook trout's future.

## PAST MANAGEMENT GOALS

### Lakes and Ponds

The management goal for the last planning period, commencing in 1986, called for the maintenance of existing availability and quality of brook trout in all Regions except A and B, where these parameters were to be increased. In 1991 the management goal was modified to maintain existing availability and quality of brook trout statewide and to improve fishing quality on waters capable of above-average growth rates. Specific objectives for abundance were to increase the distribution of brook trout from 7,000 to 9,000 acres in Region A and from 3,600 to 4,500 acres in Region B. It was also recommended that the contribution of wild stocks be maximized statewide. Since these objectives were first stated, the distribution of brook trout in Regions A and B have increased substantially (Table 1), exceeding the distribution objectives for these two Regions. The increase in distribution has resulted primarily from the stocking of legal-size brook trout in marginal (limited by unsuitable water quality, temperature, and/or by interspecific competition) habitat with the intent that they be angled before they succumb to these limitations. On a statewide basis, the distribution of principal-fishery brook trout waters has increased from 391,400 acres in 1991 to 393,400 in 1996 and 403,396 in 2001 as additional existing brook trout lakes have been surveyed and added to the inventory.

To meet the abundance objective of maximizing the contribution of wild stocks to the fishery statewide, the Fishery Division formulated and implemented special regulations intended to reduce harvest and afford protection to the genetically-important, sexually-mature individuals of wild trout populations. These special regulations became effective in 1996. Evaluations of the effectiveness of these regulations indicate that, to date, the proportion of age III+ and older brook trout (91% of which were sexually mature) sampled by fall trapnetting was 20% in lakes with regulations of low-to-moderate severity and 26% for lakes with high-to-severe regulations; the proportion of age IV+ trout (97% of which were sexually mature) was 1% and 4% for the same categories. This analysis includes only the first two years post-regulation change; additional increases in the proportion of older fish sampled may accrue over time.

The harvest objective developed in 1986 was to permit removal of 40-50% of the estimated spring legal wild population and, for hatchery-supported populations, removal of 60-80% of the total number stocked over a two-year period following stocking. The objectives were redefined in the 1991 update because these parameters could not be determined for more than a few waters annually with current management capabilities. Instead, future comparisons will rely on the relative number of pounds per acre harvested, as determined from statewide angler surveys and confirmed by field data as resources allow. The harvest objective in the 1991 update was therefore set at 0.5 pounds per acre based on the estimated annual (winter plus summer) statewide harvest rate of 0.45 pounds per acre reported. The annual harvest rate for lakes reported during the last planning period (1996) increased to 1.11 pounds per acre and is currently 0.96 pounds per acre, nearly twice the harvest objective, suggesting that a harvest objective of 0.5 pounds per acre is too conservative.

The 1986 fishing quality objectives were to improve fishing quality in Regions A and B to levels typical of other Regions (0.5 trout caught per angler trip and an average size of 11 inches for open water fishing in lakes) and to optimize public access statewide. The fishing quality goal was met for Regions A and B as of 1996, when these rates were 0.49 and 0.57 respectively. The most recent angler surveys indicate that fishing quality in Regions A and B are similar to those of 1996, with brook trout catch rates per angler trip of 0.43 and 0.44 respectively. Statewide, the

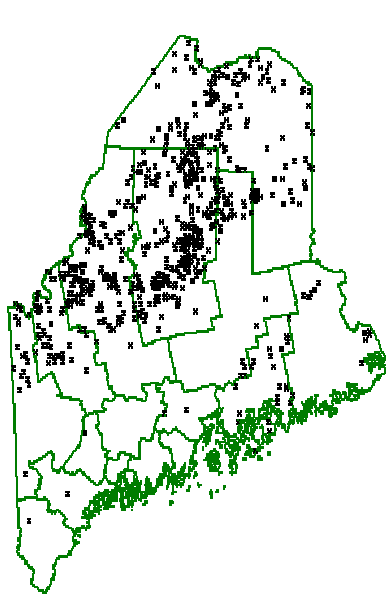
catch rate declined slightly from 0.98 reported in the 1996 update to the current 0.85. Although high levels of fishing quality have been attained on individual waters in Regions A and B stocked with legal-sized fish, it is unreasonable to set fishing quality for those Regions equal to that of other Regions given the lack of principal brook trout habitat and the high angler demand. The current catch rate of 0.5 fish per angler trip, which is approximately half that of the current statewide average, seems maintainable for these Regions with a sustained stocking effort. The fishing quality objective of increasing the average brook trout length in Regions A and B to 11 inches has been exceeded (current average lengths are 12.9 and 12.4 inches, respectively). The statewide average for lakes, derived from clerk surveys and sampled from 1996-2000, is 13.3 inches.

## OPPORTUNITY

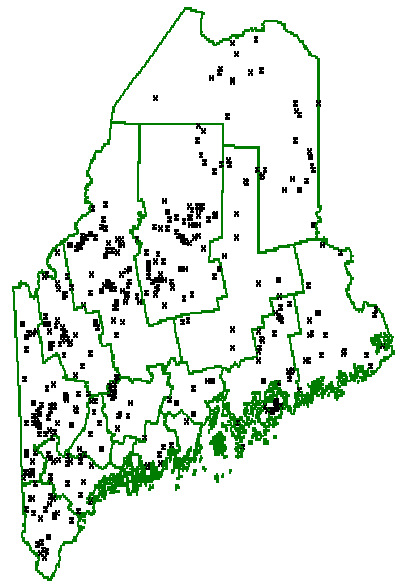
### Lakes and Ponds

Maine has the most extensive distribution and abundance of brook trout in the eastern United States. Brook trout occur in 1,487 lakes (769,264 acres) and provide principal fisheries in 1,135 lakes (403,396 acres) (Table 2). Because it is a more accurate indicator of fishing quality, the amount of habitat providing principal fisheries, rather than the total occurrence, will be used in this document.

Maine's wild brook trout waters are not evenly distributed throughout the state but are concentrated in the interior highlands which have a cooler climate and fewer introduced competing fish species (Figure 1). Those brook trout lakes located in the coastal and interior lowlands are more likely to be dependent on stocking to provide a fishery (Figure 2). Regions D, E, F, and G, which include most of the interior highlands, contain 73% of the lakes and 73% of the acreage in which trout occur. These Regions



**FIGURE 1. LOCATION OF WILD BROOK TROUT LAKES IN MAINE**



**FIGURE 2. LOCATION OF STOCKED BROOK TROUT LAKES IN MAINE**

contain an even greater proportion of the lacustrine habitat categorized as principal fisheries: 81% of the lakes and 92% of the acreage.

Because brook trout tend to favor the shallow (littoral) areas of lakes, the size of the body of water is an important indicator of brook trout abundance. Smaller ponds and lakes generally produce more trout per acre than larger, deeper lakes that have proportionally less productive trout habitat for their size. For that reason, an arbitrary-but-realistic size of 200 acres and less is used to designate "typical" brook trout ponds.

Of the 1,135 brook trout lakes that provide principal fisheries, 490 (43%) are currently being stocked (Table 3); these waters account for 58% of the principal-fishery acreage.

Conversely, 645 principal brook trout fisheries are sustained by natural reproduction. Of these, 424 lakes and ponds, comprising 81,492 acres, have never been stocked, and therefore contain potentially unique genotypes. In addition, some of the infrequently-stocked lakes may still contain relatively pure genotypes because early stockings were often unsuccessful. Of the stocked lakes, 120 have not been stocked since 1965; 40 have not been stocked since 1955; and 25 have not been stocked since 1945.

Recent work on Maine trout ponds has provided abundance estimates for waters 200 acres or less in size. These data allow for more detailed categorization of brook trout lakes; separation by size, stocking, and competition status is presumed to result in greater accuracy of abundance estimates. Sample sizes remain small, however, and may not be representative of statewide averages. Few estimates of brook trout abundance exist for waters greater than 200 acres in size, and the abundance figures chosen are therefore subject to error. Nonetheless, this method of categorizing habitat has the potential to yield increasingly accurate abundance estimates as additional data are collected. For the current estimates of post-season (late fall) abundance, only principal fisheries are included. The average number of brook trout per acre varies widely. Not surprisingly, waters that were stocked and had little interspecific competition had the greatest number of brook trout (115/acre); those with wild populations and with high interspecific competition had the least (15/acre) (Table 4).

No significant changes are anticipated in the amount of habitat presently available in lakes and ponds during this planning period, though some continued loss of habitat from development and the introduction of competing species to trout waters is anticipated. The loss of habitat through the introduction of competitors can be slowed somewhat by pond reclamation, which has been successful in the past in eradicating some illegal introductions before they spread throughout the drainage.

In the 1990's a reduction in the abundance of older-age (age IV and greater) brook trout was documented by comparing the age structure of relatively unexploited brook trout populations sampled in the 1930's and 1940's to those sampled within recent years. The decline in the proportion of older fish was attributed to increased angler use and harvest, and was an incentive for developing restrictive regulation categories. These regulation classes, which are combinations of low bag limits and high length limits, were intended to restore age and size quality of these population to their former levels (Table 5). They became effective in 1996 on 453 (40%) of Maine's lakes with principal brook trout fisheries. A smaller number of lakes considered to contain exceptional brook trout fisheries have been chosen as 'Fisheries Initiatives' waters, and have had highly-restrictive special regulations applied, also effective 1996, to protect and enhance trophy-class brook trout fisheries. Studies conducted to evaluate the efficacy of these regulations indicate that brook trout lakes with restrictive regulations have a significantly higher proportion of older fish than those with regulations of low to moderate severity. Currently, 380 (33%) of Maine's principal brook trout lakes are managed as 'Size Quality' waters (Table 6). These waters have a minimum length limit of at least 12 inches. On an area-basis, 291,894 acres, or 72% of the total, are included in this category, reflecting the fact that many larger brook trout lakes have restrictive regulations. An additional 24 (2%) of the principal brook trout lakes are managed as 'Trophy' waters, with a minimum length limit of at least 16 inches. These lakes total 6,542 acres in size, representing 2% of the total principal-fishery acreage. The relatively small number of Trophy waters reflects the fact that only a small proportion of Maine's lakes are capable of growing large-size brook trout.

### **Brooks and Streams**

Of Maine's 31,806 miles of flowing water, about 22,248 (70%) are considered to be brook trout habitat (Table 7). As with the distribution of brook trout in lakes, the majority of brook trout streams are concentrated in the interior highlands; Regions D, E, F, and G contain 76% of the miles designated as brook trout stream habitat.

Estimates of brook trout abundance in streams has been determined for representative waters statewide since the 1960's. Because electrofishing is labor-intensive, however, population estimates have been determined for relatively short reaches of stream. Beginning in 1998, this procedure was refined by separating population estimates for some waters by stream type, defined by differences in stream characteristics. Many of the streams were historically selected for population estimates because they contained what was believed to be the best brook trout habitat; they were typically low-gradient, winding reaches with riffle-pool habitat. These streams contained an average of 110 legal-size brook trout per mile. Streams that were steeper, straighter, and had fewer pools averaged only 63 legal-size brook trout per mile. Additional work remains to be done to determine brook trout abundance for other stream types and to expand these samples to obtain an accurate statewide estimate of brook trout abundance in streams.

Brook trout populations in streams are supplemented by stocking if angler demand exceeds the ability of streams to produce brook trout. This situation frequently occurs in the most populous areas of the state. Accordingly, stream stocking is practiced most intensively in Region A, which accounts for 86% of the fall fingerlings and 61% of the spring yearling brook trout stocked statewide in the last three years (Table 8). Statewide, fry account for the largest number of brook trout stocked per stream, but probably provide the poorest returns given their high mortality rates. Fall fingerling stocking can be successful if overwintering habitat, in the form of pools, is available. Frequently, however, it is not, and spring yearlings are stocked with the expectations that immediate returns to anglers will be high and that carryover rates to older ages will be low.

Some loss of stream habitat is expected despite the protective effects of the environmental laws. Although these losses are expected to be relatively small, they will likely occur in those areas of the State not only being the most aggressively developed, but also the areas where the current resource is poorly distributed and the most heavily utilized. Habitat losses, however small, are frequently permanent and thus cumulative. Stream surveys conducted within recent years in Region D suggest that many of Maine's interior rivers and streams that provide brook trout habitat may be degraded as a result of activities associated with log driving and timber harvesting. Although log driving was terminated many decades ago, surveyed streams that were driven tend to remain overwidened, entrenched (incised), and have fewer pools than would be expected. It is assumed that restoration of these streams to their natural state would improve fisheries habitat and therefore brook trout abundance. Efforts to investigate the feasibility of stream restoration on several Western Maine waters are currently underway.

Brook trout abundance and size quality has increased on streams that were selected for special regulations similar to those imposed on lakes. These regulations, imposed as Fisheries Initiatives, included catch-and-release and other restrictions intended to preserve and enhance wild brook trout fisheries. Though the number of streams is not large, those included are some of the state's most valuable brook trout resources.

## DEMAND

### Lakes and Ponds

Brook trout populations supported by natural reproduction account for 67% of the number and 82% of the acreage of lakes with principal fisheries. New minimum length restrictions of 8, 10, and 12 inches, effective 1996, have been promulgated on brook trout lakes with both wild and stocked populations. Prior to 1996, the statewide minimum length limit on brook trout in both lakes and streams was 6 inches, except in three southern counties where it was 8 inches in lakes. These standardized length regulations facilitated the estimation of allowable statewide harvest estimates, which were obtained by multiplying the estimated supply of brook trout by the maximum allowable harvest, expressed as a percent. For wild brook trout populations, an annual harvest of 50 percent of the available population of fish 6 inches and longer was set as a maximum allowable harvest for previous planning periods. For stocked waters, where natural reproduction is not a consideration, an annual harvest of up to 70% of the available trout was determined to be allowable. Using the estimated springtime standing crop plus a 25% rate of recruitment, an estimate of 2,150,000 brook trout of legal-size (6 inches and greater in length) was estimated for the planning period commencing in 1986. Using the same method, the standing crop of brook trout 6 inches and greater in length was estimated to be 4,139,000 in 1991.

Estimates of statewide brook trout abundance are not being made for this update of the species plan because it is felt that the methodology used for estimation is prone to error, as evidenced by the wide range in estimated abundance from 1986 to 1991.

Although the 6-inch minimum length limit remains in effect in seven northern county lakes and an 8-inch minimum length limit has been imposed on the lakes of the nine southern counties effective 1996, efforts to estimate the allowable brook trout harvest are confounded by the imposition of special (though necessary) length limits on nearly 500 lakes. Furthermore, the concept of 'maximum allowable harvest' is being replaced by 'optimum sustained yield', which implies consideration of size, age, and genetic qualities of wild brook trout populations in addition to their standing stocks when determining appropriate harvest rates. As mentioned previously, there is evidence that imposition of the aforementioned special regulations are reversing the decline in the numbers of older, genetically important brook trout. The success of this effort will be indicated by an increase in the proportion of age IV+ and older brook trout in the population from the current 10% to the historic 20%. Given the loss of older-age fish from brook trout populations, it appears that the previous maximum allowable harvest of 50% of trout 6 inches or greater in length was too high to maintain fishing quality.

The extent of current angler demand on brook trout in lakes is based on the results of angler questionnaires. Creel survey data are available for only a few waters (Table 9), all of which are under 200 acres in size, and are therefore unlikely to be representative of the state at large. Furthermore, those chosen to represent stocked fisheries have either severe interspecific competition or severe regulatory restrictions and therefore likely under-represent statewide harvest figures. Nonetheless, accrual of additional data from surveys of individual waters will eventually yield valuable information on angler use and harvest estimates from brook trout lakes with differing sizes, regulatory restrictions, water-quality limitations, and degrees of interspecific competition. Estimates from the 1999 angler questionnaire indicate an annual demand of 1,882,368 angler days (Table 10), 1,633,496 (86.8%) of which occur in the summer. Of these, 1,488,211 (91.1%) of the angler days occur on lakes.

The voluntary release rate of legal-size brook trout, which was considered to be negligible when the first species plan was written, has increased substantially, and therefore both the number of fish caught and the number kept are now both used as indicators of success. Winter anglers keep half of their catch of legal-size fish; summer anglers keep slightly less than a third. Angler success is lowest in the winter, presumably because most of the better trout waters are closed to ice fishing. Anglers and managers alike are aware that brook trout in small ponds are extremely vulnerable to ice fishing, and that fisheries would be destroyed if this type of fishing were allowed. Likewise, the historical closure to fishing during the fall spawning period should be continued where brook trout are known to reproduce.

Regional estimates of winter angler-use and catch (Table 11) indicate that Regions E and G, located in the northwest section of the state, account for 45% of the statewide angler-days and 45% of the brook trout harvest. On a statewide basis, winter anglers kept 37% of the legal-size trout they caught, a substantial decline from the 48% reported in the 1993-94 angler questionnaire. They caught brook trout at an average rate of 0.47 per day and kept them at a rate of 0.18 per day.

For lakes during the summer season, the highest rates of angler-use and catch occurred in Regions D, and E, which together accounted for 53% of the angler days and 47% of the harvest (Table 12). Statewide, the proportion of legal-size trout kept also declined, from 32% in 1994 to 25% in 1999. Brook trout were caught at a rate of 0.84 per day and kept at a rate of 0.25 per day.

There were no clear trends in catch-rate changes from 1994-1999; the number of trout caught per angler day in lakes increased from 0.40 to 0.47 during the ice fishing season but declined from 0.99 to 0.84 during the summer season.

The mean length of brook trout harvested from lakes (as determined from clerk surveys) is 13.2 inches in the winter and 14.0 inches in the summer (Table 13). Their mean weights are 0.92 and 1.05 pounds respectively, yielding an estimated annual harvest of 362,420 pounds, 40,593 pounds (11%) of which are harvested during the winter and 321,827 pounds (89%) are harvested during the summer. The estimated yield represents a 10% decline from that of 1994. This decline was anticipated given the imposition of restrictive regulations and the increased tendency toward catch and release, and is expected to contribute toward improved brook trout size quality. However, on a per-acre basis, the annual harvest was 0.96 pounds<sup>1</sup> (0.16 pounds were harvested in the winter and 0.80 pounds were harvested in the summer), indicating that the harvest objective of 0.5 pounds per acre is still being exceeded. The current harvest rate represents only a moderate decline from the annual harvest of 1.11 pounds per acre reported in the 1996 update.

Angler demand, which increased in the 1980's as a result of increasing license sales and improved access to once-remote trout ponds, is expected to remain relatively stable during the next planning period. However, harvest is expected to decline as a result of the imposition of restrictive regulations designed to restore quality brook trout fisheries and as more anglers practice catch and release. Conversely, catch rates are expected to rise.

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<sup>1</sup> Calculated using acreage of principal fishery waters open to fishing.

## **Brooks and Streams**

There are a total of 22,248 stream miles of habitat, and an estimated 75 wild brook trout 6 inches and longer per mile for streams sampled. However, because the number of brook trout per miles varies considerably with stream type and size, it is not possible to accurately estimate the number of brook trout in streams statewide. Angler use on streams was estimated to be 399,696 angler-days in 1999, a decline of 24% since 1994. These anglers caught an estimated 978,505 legal-size brook trout, or 2.45 per angler; the harvest rate was 0.82 fish per angler-day. The proportion of trout kept declined from 37% in 1994 to 34% in 1999 while the catch rate increased from 2.00 to 2.41 for the same period. Region G, which has the greatest mileage of streams suitable as brook trout habitat, accounted for 20% of the angler-use and 34% of the catch.

Despite the fact that three times as many angler days are spent fishing on lakes as on streams, the number of trout caught is similar because the catch-rate on streams is three times that of lakes. The total number of trout kept is slightly higher on streams because these anglers keep a higher proportion of their catch.

A harvest of 50% of available supply was set as a safe maximum in earlier species plans. However, this standard is difficult to measure given present monitoring capabilities. Instead, brook trout abundance is monitored statewide annually on representative waters, and results, as defined by the estimated number of mature fish per unit of area, indicate that brook trout in streams are not being over harvested at current use levels, although fishing quality has declined in specific streams that receive high levels of angler-use. While this problem has been addressed with the imposition of special regulations on selected streams and rivers that are capable of exceptional brook trout fisheries, there remain many fisheries in smaller streams that have become locally over-fished. Under current levels of staffing, it is not possible to document the locations or extent of these local area of depletion. Overall, future demand during the current planning period, like that of lakes, is expected to remain fairly stable. Therefore, demand should not exceed available supply.

## CONSTRAINTS ON OPPORTUNITY

Overall opportunity to use the existing brook trout resource is not severely limited. Unavoidable limitations on the use of this species include regulations designed to sustain their numbers and distribute the catch among anglers, as well as the physical distribution of brook trout populations throughout the state, which is concentrated away from population centers. Use opportunity is also limited by restricted access to some public waters, particularly in the western part of the state. Regulations imposed to protect brook trout populations from over-exploitation include bag, length, gear, and season restrictions. Among the latter, the closure of many brook trout waters to ice fishing is the most use-restrictive; only 225 (20%) of the lakes are open to ice fishing (Table 14); however, these lakes represent 62% of the total acreage because only the larger brook trout lakes (including many of the state's largest lakes) are open to ice fishing. Brook trout waters have traditionally been closed to fishing after Sept. 30 to protect spawning populations. As a result of angler initiatives, the fishing season is being extended throughout October on many stocked lakes and ponds to provide additional opportunity. Waters opened to October fishing have restrictive gear restrictions and are open to catch-and-release fishing only.

Due to angler mobility, the distance of the majority of Maine's brook trout lakes from population centers does not significantly reduce opportunity. Furthermore, the advent of the all-terrain vehicles (ATVs) in the 1980's has resulted in increased use of waters once accessible only by foot. These vehicles are frequently used to access Remote Trout Ponds in violation of LURC zoning standards, though recent legislation restricting their use may alleviate this problem. Landowner restrictions on legal and physical access are significant in some unorganized townships of the state. Private roads are the only means of vehicular approach to many of the trout waters located in northern and western Maine. Public use of many of these roads is often controlled and sometimes restricted resulting in reduced use-opportunity. The total acreage of brook trout lakes with restricted public access is 6,617, or 1.6% of the statewide total (Table 15). Region D has 39 lakes (71%) of the 55 brook trout lakes with restricted public access. Accessibility to many trout waters is in a constant state of change as new logging roads are constructed and old ones degrade to impassability. Overall, however, additional permanent road development has resulted in net gain in road access and use since the 1970's.

Management experience indicates that fishing quality frequently declines as accessibility increases. The Fish and Wildlife Department therefore does not advocate unlimited access to all brook trout waters, but rather equal access for all anglers. To provide a variety of angling opportunity, we recommend that the access to remote trout ponds remain undeveloped. To that end, some remote waters have been designated "wilderness" ponds under Land Use Regulation Commission statutes at the advice of the Department of Inland Fisheries and Wildlife. A total of 170 waters in the unorganized townships of eight counties are protected from permanent road construction within a half mile of their shorelines (Table 16); this number represents a decline of 7 waters (4%) since the 1996 update was written.

Opportunity to fish for brook trout in flowing waters increased with the extension of the open-water fishing season from August 15 in brooks and streams and from September 15 in rivers to September 30, effective 1988. To protect pre-spawning populations, this season extension requires the use of artificial-lures-only and restricts the bag limit to one trout. Angler access to some streams or portions of streams is barred by private landowners who do not allow trespassing, and access to many streams located in the unorganized townships of the state is affected by landowners who control public use on private roads (e.g., the upper sections of the Androscoggin River drainage). The extent of these restrictions on public use has not been quantified, but, thanks to landowner tolerance, is not a severe problem statewide. The promotion

of responsible use of private lands – as well as the resolution of conflicts between landowners and anglers - is addressed through Project Landshare, the Department's landowner relations program, which received new direction and emphasis in 2000.

The opportunity for anglers to use existing brook trout fisheries is expected to remain at approximately the current levels for the next planning period, but it could change unpredictably with any ownership or policy changes of the major woodland owners. The imposition of fees for private road use, while justifiable if reasonable and equitably applied, may discourage some angler use.

The effect of recently-enacted special regulations intended to improve the quality of brook trout fisheries will affect use opportunity to an as-yet unknown degree. The imposition of more restrictive regulations may discourage some anglers from fishing particular waters. However, angler attitudes toward harvest are changing (as evidenced by an increasing rate of voluntary release of legal-size fish), and it is anticipated that the proportion of anglers who fish non-consumptively and those who value "quality" fisheries will continue to increase. These contentions are supported by angler preferences expressed in the Summer, 1999 open water fishing survey; a majority of anglers rated fishing in remote waters and fishing for wild fish as 'very important'. Only a minority felt that 'catching many fish' was very important. Furthermore, the rating of fishing quality by anglers, as reported in open water fishing surveys, increased from 2.1 ("fair") in 1994 to 2.9 ("good") in 1999, implying angler approval of recent management initiatives.

It is also likely that advertisement of the development of quality brook trout fisheries will attract additional angler use. Because of the brook trout's vulnerability to harvest by ice fishing, it is not recommended that use opportunity be increased by opening additional waters during the winter season. In terms of brook trout 6 inches and longer, supply still exceeds angler demand. As evidenced by the loss of older-age fish in the population, however, there has been a decline in fishing quality. Regulations intended to restore brook trout fishing quality in lakes became effective in 1996, and early results indicate that they are effective in meeting this goal.

**Table 1. Abundance of Principal Fisheries Brook Trout Habitat (acres) in Lakes, Regions A and B**

REGION	YEAR			
	1986	1991	1996	2001
A	7,000	8,100	10,000	14,524
B	3,600	4,000	8,300	8,509

**Table 2. Number and Acreage of Maine Brook Trout Lakes as of 2000, by Region**

REGION	TOTAL OCCURRENCE		PRINCIPAL FISHERIES		ONGOING INTRODUCTIONS	
	NUMBER OF LAKES	ACRES OF LAKES	NUMBER OF LAKES	ACRES OF LAKES	NUMBER OF LAKES	ACRES OF LAKES
A	120	63,589	93	14,524	0	0
B	97	52,644	37	8,509	0	0
C	189	93,924	80	8,027	1	16
D	233	105,473	193	73,709	0	0
E	402	223,166	369	171,274	3	50
F	191	136,571	129	35,472	1	11
G	255	93,897	234	91,881	0	0
<b>STATE</b>	<b>1,487</b>	<b>769,264</b>	<b>1,135</b>	<b>403,396</b>	<b>5</b>	<b>77</b>

**Table 3. Three Year Stocking Summary (1998-2000) for Brook Trout in Lakes, by Region and Age Group<sup>2</sup>**

REGION	AGE	NUMBER OF LAKES STOCKED	NUMBER OF ACRES STOCKED	AVERAGE STOCKED PER YEAR		AVERAGE STOCKED PER ACRE	
				NUMBER	POUNDS	NUMBER	POUNDS
A	AD	25	3,964	168	885	0.3	1.4
	FF	53	12,461	34,133	3,744	26.6	2.8
	FY	37	7,700	1,538	1,740	0.7	0.8
	SY	87	15,322	32,494	11,667	13.5	4.8
	ALL	104	24,322	38,333	18,036	13.0	3.3
B	AD	19	17,757	886	951	0.2	0.2
	FF	11	7,130	14,175	1,982	55.4	10.0
	SY	38	13,285	35,361	12,769	8.6	3.1
	ALL	57	27,681	50,422	15,702	13.9	3.6
C	AD	13	2,103	393	554	0.7	1.1
	FF	52	5,617	34,115	3,272	27.0	2.4
	FY	10	425	650	786	2.8	3.3
	SY	30	3,091	5,850	2,038	12.2	4.9
	ALL	60	7,204	41,008	8,631	20.0	3.0
D	AD	9	18,422	525	1,067	0.2	0.4
	FF	70	14,965	124,355	10,618	57.5	5.0
	FR	5	7,165	7,212	30	96.0	0.4
	SY	30	15,858	19,107	6,757	6.4	2.3
	ALL	97	29,896	151,199	18,472	45.7	4.0
E	AD	3	662	298	703	0.5	1.3
	FF	62	6,299	92,758	8,703	48.7	4.5
	FR	1	15	1,400	4	93.3	0.3
	SY	2	487	750	825	2.7	2.9
	All	76	86,013	95,206	14,816	59.1	12.2
F	AD	7	5,684	1,412	3,005	3.8	9.2
	FF	43	46,152	31,977	2,379	14.1	1.1
	FR	1	7,168	38,100	114	5.3	0.0
	SY	20	37,124	15,834	5,986	9.8	4.5
	All	51	50,450	87,323	11,484	12.1	2.6
G	AD	2	1,291	200	550	0.3	0.7
	FF	24	1,602	53,583	4,557	53.9	4.6
	SY	19	7,991	12,530	5,387	10.5	4.4
	ALL	42	9,475	66,313	10,494	35.3	4.5
STATE	AD	78	49,883	2,773	5,337	0.6	1.7
	FF	315	94,226	385,097	35,254	40.0	3.7
	FR	7	14,348	21,312	72	90.2	0.4
	FY	49	8,612	2,005	2,277	0.9	1.1
	SY	241	172,654	140,918	52,183	16.7	6.4
	ALL	490	235,041	552,105	95,123	26.4	4.4

<sup>2</sup> Averages are weighted and therefore may be different from those obtained by simple division.

**Table 4. Post-season Estimates of the Number of Brook Trout 6 Inches in Length and Greater in Maine Lakes with Principal Brook Trout Fisheries**

LAKE SIZE CATEGORY (ACRES)	STOCKED	SUCKERS PRESENT <sup>3</sup>	ESTIMATED NO. OF BKT/ACRE <sup>4</sup>	TOTAL NO. OF ACRES
<200	No	No	45	12,801
	No	Yes	15	15,382
	Yes	No	115	4,997
	Yes	Yes	40	8,970
<b>Subtotal</b>			<b>54</b>	<b>42,150</b>
>200	No	No	10	10,010
	No	Yes	3	286,152
	Yes	No	25	491
	Yes	Yes	11	54,562
<b>Subtotal</b>			<b>12</b>	<b>351,215</b>
<b>TOTAL</b>			<b>33</b>	<b>393,365</b>

**Table 5. General Law and Standardized Special Regulation Classes for Brook Trout Lakes Effective 2000**

CLASS	BAG LIMIT	LENGTH LIMIT	LAKE CATEGORY	NO. OF LAKES (ACRES) <sup>5</sup>	
				GENERAL LAW	SPECIAL REGULATIONS
I	2 trout	12 inch minimum; only 1 fish may be greater than 14"	Highest growth potential		118 (117,582)
II	2 trout	10 inch minimum; only 1 fish may be greater than 12"	High growth potential		225 (69,064)
III <sup>6</sup>	2 trout	8 inch minimum	Moderate growth potential and stocked waters where distribution of the catch among anglers is a goal	125 (22,162)	110 (14,753)
IV <sup>7</sup>	5 trout	6 inch minimum	"Put and Take" Stocked waters and remote waters with low angler use	479 (72,622)	1 (9)
None	Various				82(107,282)
<b>Total</b>				<b>604 (94,784)</b>	<b>536 (308,690)</b>
<b>State</b>				<b>1,140 (403,474)</b>	

<sup>3</sup>Although suckers are not the only serious brook trout competitor, they are used as an indicator species of competition, and are in fact frequently present in combination with other competing species.

<sup>4</sup>The number of brook trout per acre for lakes 200 acres and less is estimated from fall population estimates plus harvest estimates, and therefore does not account for recruitment or natural mortality.

<sup>5</sup>Principal fisheries only. A principal fishery is one for which the species is regularly sought by anglers and which makes up a significant portion of the catch.

<sup>6</sup>Class III regulations are general law regulations on lakes in Androscoggin, Cumberland, Kennebec, Knox, Lincoln, Oxford, Sagadahoc, Waldo, and York counties.

<sup>7</sup>Class IV regulations are general law regulations on lakes in Aroostook, Franklin, Hancock, Penobscot, Piscataquis, Somerset, and Washington counties.

**Table 6. Number and Acres of Principal Fishery Brook Trout Lakes by Management Objectives<sup>8</sup>**

REGION	GENERAL		SIZE QUALITY		TROPHY	
	NUMBER OF LAKES	ACRES	NUMBER OF LAKES	ACRES	NUMBER OF LAKES	ACRES
A	84	13,930	9	594	0	0
B	28	7,379	6	969	3	161
C	46	2,883	33	5,018	1	126
D	121	12,203	70	60,964	2	542
E	186	19,788	170	145,896	13	5,590
F	94	24,539	34	10,925	1	8
G	172	24,238	58	67,528	4	115
STATE	731	104,960	380	291,894	24	6,542

**Table 7. Miles of Stream Habitat by Management Region**

REGION	ESTIMATED TOTAL STREAM MILEAGE	MILES BROOK TROUT HABITAT	PERCENT BROOK TROUT HABITAT
A	3,729	1,678	45
B	3,598	720	20
C	3,793	2,845	75
D	4,837	3,870	80
E	4,134	3,307	80
F	4,770	3,578	75
G	6,945	6,250	90
STATE	31,806	22,248	70

<sup>8</sup> General: lakes and ponds managed for 'average' fisheries; Size Quality: lakes and ponds managed to protect and enhance trout greater than 12 inches in length; Trophy: managed to protect and enhance trout greater than 16 inches in length.

**Table 8. Three Year Stocking Summary (1998-2000) for Brook Trout in Streams, by Region and Age Group**

REGION	AGE	NUMBER OF STREAMS STOCKED	AVERAGE STOCKED PER YEAR		AVERAGE STOCKED PER STREAM	
			NUMBER	POUNDS	NUMBER	POUNDS
A	AD	3	54	319	16	93
	FF	16	11,047	905	1,136	88
	FR	8	9,415	179	2,502	33
	FY	6	680	727	56	61
	SY	67	36,569	10,325	311	77
	ALL	73	57,765	12,455	804	70
B	FR	1	52,800	18	26,400	9
	SY	3	183	61	138	46
	ALL	4	52,983	79	13,269	27
C	SY	7	1,142	471	230	96
	ALL	7	1,142	471	230	96
D	SY	9	5,883	2,370	607	247
	ALL	9	5,883	2,370	607	247
E	SY	10	14,568	5,594	546	204
	ALL	10	14,568	5,594	546	204
F	FF	1	1,500	108	1,500	108
	FR	2	16,750	54	8,400	29
	SY	5	1,433	617	275	118
	ALL	8	19,683	779	3,392	85
G	SY	3	583	237	292	119
	ALL	3	583	237	292	119
STATE	AD	3	54	319	16	93
	FF	17	12,880	1,125	1,277	109
	FR	11	38,181	220	5,248	31
	FY	6	680	727	56	61
	SY	104	60,362	19,676	355	111
	ALL	113	112,157	22,067	1,390	81

**Table 9. Estimated Brook Trout Catch and Effort for Lakes Less Than 200 Acres in Size, Stocked and Wild Populations. All waters Sampled Are Closed to Ice Fishing**

ORIGIN	NO. WATERS SURVEYED	YEARS SURVEYED	ANGLERS	ANGLER DAYS	LEGAL FISH		% KEPT	FISH PER ANGLER	
					CAUGHT	KEPT		CAUGHT	KEPT
Hatchery	3	1998-99	657	7,516	410	140	34	0.05	0.02
Wild	4	1994-98	392	792	344	181	53	0.43	0.23

**Table 10. Estimated Brook Trout Catch and Effort by Season and Water Type. From 1998-99, and 1999 Angler Questionnaires. (Numbers in Parentheses are 95% Confidence Intervals)**

SEASON	WATER TYPE	ANGLERS	ANGLER DAYS	LEGAL FISH		% KEPT	FISHER PER ANGLER - DAY	
				CAUGHT	KEPT		CAUGHT	KEPT
Winter	Lakes	38,441 (1,468)	248,872 (17,648)	119,644 (21,988)	44,122 (6,293)	37	.48	0.18
Summer	Lakes	124,534 (2,208)	1,239,339 (48,516)	1,055,274 (67,823)	308,062 (6,473)	29	0.85	0.25
	Streams	51,580 (1,897)	399,696 (21,512)	978,505 (66,758)	326,449 (30,275)	33	2.45	0.82
	Both	142,392 (2,123)	1,633,496 (56,310)	2,049,028 (105,316)	635,985 (42,672)	31	1.25	0.39

**Table 11. Estimated Brook Trout Catch and Effort, Ice Fishing Season, by Region. From 1998-99 Angler Questionnaire. (Numbers in Parentheses are 95% Confidence Intervals)**

REGION	ANGLERS	ANGLER DAYS	LEGAL FISH		PERCENT KEPT	FISH PER ANGLER DAY	
			CAUGHT	KEPT		CAUGHT	KEPT
A	8,016 (972)	40,362 (5,596)	18,610 (7,920)	7,598 (2,831)	41	0.46	0.19
B	7,772 (959)	43,847 (7,616)	11,118 (2,968)	5,193 (1,542)	47	0.25	0.12
C	2,997 (620)	16,537 (3,751)	10,281 (4,679)	4,078 (1,475)	40	0.62	0.25
D	2,579 (577)	8,302 (1,961)	4,809 (2,104)	2,091 (952)	43	0.58	0.25
E	13,940 (1,215)	60,905 (7,934)	33,004 (7,769)	10,874 (2,505)	33	0.54	0.18
F	5,785 (842)	28,609 (5,278)	17,565 (13,170)	5,193 (1,854)	30	0.61	0.18
G	6,643 (877)	51,135 (9,602)	24,256 (15,228)	9,096 (3,108)	38	0.47	0.18
ALL	47,732	249,697	119,643	44,123	37	0.48	0.18

**Table 12. Estimated Brook Trout Catch and Effort, Open Water Fishing Season, by Water Type and Region. From 1999 Angler Questionnaire. Sums are not Additive Because Estimates Were Made Independently.**

REGION	WATER TYPE	ANGLERS	ANGLER DAYS	LEGAL FISH		PERCENT KEPT	FISH PER ANGLER DAY	
				CAUGHT	KEPT		CAUGHT	KEPT
A	Lakes	22,133	217,362	93,699	27,301	29	0.43	0.13
	Streams	9,689	82,667	108,290	30,872	29	1.31	0.37
	All	28,972	299,485	203,582	58,623	29	0.68	0.20
B	Lakes	14,344	123,187	53,715	18,202	34	0.44	0.15
	Streams	3,420	24,600	29,067	13,581	47	1.18	0.55
	All	17,003	147,824	83,445	31,931	38	0.56	0.22
C	Lakes	6,649	42,461	37,332	14,439	39	0.88	0.34
	Streams	3,800	17,561	58,230	24,128	41	3.32	1.37
	All	9,309	60,558	95,561	38,566	40	1.58	0.64
D	Lakes	42,651	372,947	339,836	69,185	20	0.91	0.19
	Streams	15,009	98,077	255,147	47,170	18	2.60	0.48
	All	49,015	471,559	600,684	116,694	19	1.27	0.25
E	Lakes	42,651	287,308	278,925	73,644	26	0.97	0.26
	Streams	8,739	39,768	133,178	43,793	33	3.35	1.10
	All	46,261	327,550	413,932	117,498	28	1.26	0.36
F	Lakes	13,204	72,719	100,691	46,787	46	1.38	0.64
	Streams	6,934	44,504	109,525	46,001	42	2.46	1.03
	All	18,048	116,467	210,216	92,655	44	1.80	0.80
G	Lakes	18,618	133,620	147,378	56,944	39	1.10	0.43
	Streams	10,069	83,770	250,017	112,422	45	2.98	1.34
	All	23,558	216,650	402,625	170,030	42	1.86	0.78

**Table 13. Mean Brook Trout Length (Inches) and Weight (Pounds) from Lakes by Region and Season for the Years 1996-2000. Data From Clerk Surveys. Means are Means of Weighted Means. N is the Number of Surveys.**

REGION	WINTER					SUMMER					ANNUAL				
	N	LENGTH		WEIGHT		N	LENGTH		WEIGHT		N	LENGTH		WEIGHT	
		MEAN	SE	MEAN	SE		MEAN	SE	MEAN	SE		MEAN	SE	MEAN	SE
A	9	13.1	0.4	0.74	0.13	1	15.9		1.59		10	12.9	0.40	0.64	0.14
B	7	13.5	0.7	0.97	0.18	4	11.2	1.0	0.46	0.13	9	12.4	0.87	0.83	0.21
C	6	15.0	1.0	1.42	0.29										
D	3	8.9	0.9	0.32	0.10	5	13.5	0.4	1.06	0.17	6	13.7	0.34	1.11	0.11
E	10	14.5	0.6	1.11	0.21	4	14.1	0.4	0.95	0.07	12	14.3	0.18	0.99	0.05
F	3	13.5	2.3	0.91	0.31	2	15.6	0.4	1.37	0.25	4	12.1	1.86	0.74	0.26
G	40	13.9	0.2	0.99	0.06	2	13.6	0.1	0.89	0.06	31	14.3	0.17	1.03	0.04
STATE	78	13.2		0.92		18	14.0		1.05		71	13.3		0.94	

**Table 14. Number and Acres of Brook Trout Lakes Open to Fishing, 2000.**

REGION	ALL LAKES				PRINCIPAL FISHERIES			
	OPEN SUMMER		OPEN WINTER		OPEN SUMMER		OPEN WINTER	
	NUMBER	ACRES	NUMBER	ACRES	NUMBER	ACRES	NUMBER	ACRES
<b>A</b>	120	63,589	90	60,339	93	14,524	63	11,274
<b>B</b>	97	52,644	71	48,969	37	8,509	18	7,728
<b>C</b>	188	93,270	137	89,339	80	8,027	38	5,605
<b>D</b>	233	105,473	32	44,615	193	73,709	8	14,521
<b>E</b>	400	136,515	87	127,659	129	35,472	34	27,501
<b>F</b>	190	136,515	87	127,659	129	35,472	34	27,501
<b>G</b>	255	93,897	41	65,560	234	91,881	37	64,346
<b>ALL</b>	1,483	768,500	504	605,670	1,133	403,342	225	251,007

**Table 15. Principal fishery brook trout lakes closed to general public access or closed to all fishing.**

REGION	COUNTY	NUMBER (%) OF:	
		LAKES	ACRES
<b>A</b>	Oxford	1(1)	64 (<1)
<b>B</b>	Lincoln	1	78
	Waldo	1	14
	All	2(3)	92(1)
<b>C</b>	Hancock	3	565
	Washington	1	17
	All	4(5)	582(7)
<b>D</b>	Franklin	19	1,346
	Oxford	7	1,135
	Somerset	13	2,020
	All	39(20)	4,501(6)
<b>E</b>	Piscataquis	2	845
	Somerset	3	435
	All	5(1)	1,280(1)
<b>F</b>	Penobscot	1(1)	134 (<1)
<b>G</b>	Aroostook	2	28
	Somerset	1	70
	All	3(1)	98(<1)
<b>STATE</b>	All	55(5)	6,617(2)

**Table 16. Number and Acres of Brook Trout Lakes Zoned as Remote Trout Ponds by the Land Use Regulation Commission (LURC); by Management Region**

REGION	LAKE		ACRES	
	NUMBER	PERCENT	NUMBER	PERCENT
<b>A</b>	1	<1	17	<1
<b>B</b>	0	0	0	0
<b>C</b>	3	2	108	2
<b>D</b>	16	9	227	4
<b>E</b>	120	68	3,992	70
<b>F</b>	24	14	727	13
<b>G</b>	13	7	607	11
<b>STATE</b>	177		5,678	

## GOALS AND OBJECTIVES 2001-2016

### BROOK TROUT IN LAKES

**GOAL FOR LAKES AND PONDS:** Maintain the current distribution of principal fisheries for brook trout in 1,135 lakes and ponds (403,396 acres).

#### OBJECTIVES FOR LAKES AND PONDS:

1. Protect/enhance brook trout habitat.
2. Maintain self-sustaining brook trout populations.
  - A. Native<sup>9</sup> populations in 424 lakes and ponds (81,492 acres).
  - B. Wild<sup>10</sup> populations in 185 lakes and ponds.
  - C. Restore the proportion of mature brook trout to historic levels (wherein 50% of brook trout sampled by netting are age III+ or older) to assure genetic diversity and the perpetuation of wild populations.
3. Provide for a variety of fishing opportunities.
  - A. Increase the number of fishing opportunities for large fish (Size Quality and Trophy lakes) from the current 454 lakes to 500 lakes.
  - B. Maintain the current minimum of 177 Remote Trout Ponds but investigate opportunities to increase this number by promoting the zoning of additional qualifying waters.
  - C. Double youth (children less than 16 years old) fishing opportunities from the current 25 to 50.
  - D. Increase urban fishing opportunities<sup>11</sup> for catchable legals in areas proximate to larger towns and cities from the current 90 to 180.
4. Improve statewide fishing quality<sup>12</sup>.
  - A. For all principal fishery waters, increase the average catch rate to 1.0 brook trout/angler day but reduce the number of fish kept/day to 0.25. Increase the average lengths and weights of brook trout kept to 14 inches and 1 pound.
  - B. For all principal fishery waters, maintain an average harvest rate of 0.5 pounds/acre for wild brook trout waters and 1.0 pounds/acre for stocked waters.
  - C. General management waters (731 lakes and ponds; 105,604 acres): meet angler expectation of a catch rate of 5-6 brook trout/angler-day ranging from 10 to 15 inches long.
  - D. Size quality waters (430 lakes and ponds; 291,894 acres): meet angler expectation of the presence of brook trout with a minimum size of 12 to 16 inches long.
  - E. Trophy management waters (24 lakes and ponds; 6,542 acres): meet angler expectation of the presence of brook trout with a minimum size of 18 inches and/or 3 pounds.

**Capability:** Despite continued protection of brook trout habitat by existing environmental regulations, current brook trout abundance and distribution will likely decline somewhat throughout the next planning period through the continued loss of habitat as a result of

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<sup>9</sup> Native populations are self-sustaining populations that have never been stocked.

<sup>10</sup> Wild populations are self-sustaining but were established or supplemented by stocking in the past.

<sup>11</sup> Urban fishing opportunities are those that are located within half an hour's drive of an urban center and that are maintained by stocking catchable legals.

<sup>12</sup> Fishing quality is the catch rate and fish size expected by experienced anglers targeting brook trout on a good fishing day.

development and the unauthorized introduction of competing fish species. The contribution of wild stocks can be maximized by protecting trout to spawning size. Wild brook trout lakes have the capability of growing older fish than those now typically present. Historical data indicate that the proportion of trout age IV+ and older a half century ago was twice that of fish sampled in the early 1990's. Regulations intended to meet this objective by protecting spawning-size fish from over-harvest were imposed on many wild brook trout ponds effective 1996 with some additions effective 1998 and 2000, and results indicate that the proportion of older fish is increasing.

The harvest objective of 0.5 pounds per acre for wild brook trout is lower than the present harvest rate because of the current effort to improve the quality of the fishery. While the catch rate and average size are expected to increase, harvest rates will decline. For stocked populations, the higher harvest objective of 1.0 pound per acre is reasonable for most lakes. For waters with suitable water quality, however, a lower harvest rate (enforced by restrictive regulations) may be necessary to allow escapement and carryover of stocked trout to older ages with the intent of creating quality fisheries.

There is adequate habitat to meet the objective of increasing brook trout fishing quality through the stocking of catchable legals. Many oligotrophic lakes currently supporting lake trout and/or salmon fisheries have few trout, possibly as a result of predation by these larger species. Stocked spring yearlings are expected to escape predation and provide additional angler opportunity. An ongoing program provides additional brook trout fisheries in urban areas (primarily Regions A and B) through stockings of catchable legals in waters with marginal habitat. However, there are additional opportunities for enhancing existing fisheries and/or providing additional brook trout fisheries by stocking catchable legals – at varying rates and frequencies - at a yet-to-be-determined number of waters throughout the state.

**Feasibility:** As evidenced by the increase in the number of legal-size brook trout voluntarily returned and the willingness to accept stricter regulations, anglers are supportive of improved fishing quality. Restrictive regulations recently imposed on waters capable of producing brook trout of above-average size are expected to both maximize the contribution of wild stocks and improve size quality. These regulations are also intended to increase escapement of hatchery-reared trout on selected waters, resulting in increased holdover to older ages. Expansion of hatchery facilities, currently underway, should make these objectives feasible.

**Desirability:** Maintaining the current distribution of brook trout at 403,396 acres is desirable because of the species' aesthetic and economic value. Maximizing the contribution of wild stocks will ensure perpetuation of the species and maintenance of its genetic traits while improving size quality.

Permitting a harvest of 0.5 - 1.0 lb/acre of hatchery-reared populations will maintain current fishing quality for stocked fish in most waters and improve size-quality on selected waters through recently imposed restrictive regulations. The stocking of spring yearling brook trout in larger lakes with suitable water quality will improve fishing quality for this species in waters where past stocking efforts, including those of fall fingerling stockings, have performed poorly.

**Possible Consequences:** The objective of maintaining no more than the current brook trout distribution may discourage efforts to expand the species' range into new lakes. Although the brook trout's range within the state has probably already been maximized, the development of new strains by the hatchery system may present new opportunity for distribution into new habitat types in the next planning period. Efforts to maximize the contribution of wild stocks by imposing higher minimum length limits and lower bag limits will result in a reduction in allowable harvest

rates, which will be unpopular with some anglers. The higher length limits imposed on selected waters with both wild and stocked populations may also result in increased rates of hooking injury and mortality despite efforts to minimize these effects through gear restrictions and education. Although the benefits of restrictive regulations outweigh the detrimental effects of hooking mortality, anglers often react negatively to the loss of individual fish to hooking mortality. Increasing brook trout abundance through additional stockings may require changing priorities at rearing facilities, upgrading existing facilities, and/or constructing additional facilities.

## **BROOK TROUT IN LAKES MANAGEMENT PROBLEMS AND STRATEGIES**

**PROBLEM 1.** Existing data are inadequate to estimate statewide brook trout abundance and harvest. Since the last update in 1996, the number of estimates of population abundance, standing crop, and harvest estimates have increased from 6 to 22 for wild brook trout lakes and from 43 to 47 for stocked brook trout lakes. However, the sample size remains low in proportion to the total number of brook trout lakes, particularly those greater than 200 acres.

**Strategy 1.** Initiate a systematic statewide sampling regime to include waters with both wild and stocked brook trout populations, both acreage categories (LE 200 acres and >200 acres), a variety of regulations, intra-specific competition, and varying levels of angler-use. With the assistance of temporary contract help, determine estimates of population abundance, standing crop, and harvest on 30 waters annually.

**PROBLEM 2.** The effectiveness of new regulations intended to improve brook trout fishing quality to historic levels<sup>13</sup> and maximize the contribution of wild stocks has been only partially evaluated.

**Strategy 3.** For wild brook trout lakes, evaluate the success of these regulations by comparing the proportion of older-age (age III+ and greater) fish sampled to that from pre-regulation change data. For stocked populations, compare the proportion of age II+ and older fish sampled to that from pre-regulation change data. Data are to be gathered by routine nettings and creel surveys and forwarded to the species author for analysis.

**Strategy 4.** Gather and evaluate creel survey information on waters with different classes of regulations as described in Strategy 1. Contract with outside labor to assist with data collection.

**PROBLEM 3.** The relative performance in the wild of the Kennebago and domestic strains in waters with differing water quality and degrees of interspecific competition is unknown.

**Strategy 5.** Initiate a systematic research program involving multiple-year, paired stockings to determine the relative harvest rate and post-season abundance, size, and age structure of wild and domestic strains in waters of differing water quality and interspecific competition.

**PROBLEM 4.** The degree to which Maine's Hatchery system can support an expansion of the spring yearling brook trout stocking program is unknown.

**Strategy 6.** Support efforts to investigate the capacity of existing hatchery and rearing facilities to meet the needs of an expanded brook trout stocking program. If necessary, seek funding to acquire new, or expand current, hatchery facilities, staff, and equipment to accommodate increased trout production.

**Strategy 7.** Re-apportion current production capabilities to favor brook trout over other salmonids.

**PROBLEM 5.** Restrictive regulations imposed on Maine brook trout waters effective 1996 have resulted in increased brook trout size and catch rates, thereby creating a more desirable fishery, especially for anglers inclined to release a portion or all of their catch. Increased angler use is desirable economically and is sustainable biologically because restrictive regulations protect the resource from overharvest. However, there has been little advertising of this resource to date, particularly to out-of-state anglers.

**Strategy 8.** Advertise Maine's brook trout resource through the Department's Public Information & Education Division and the Maine State Office of Tourism, emphasizing a

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<sup>13</sup> By restoring the proportion of age III+ fish sampled to 50% of the total number sampled by netting.

conservation ethic and the physical beauty of the setting of many of Maine's brook trout waters.

**PROBLEM 6.** A portion of Maine's public brook trout lakes is inaccessible to anglers because access is denied over privately owned roads.

**Strategy 9.** Gain appropriate public access rights over private ways by purchase, negotiation and agreement, easement, gift, cooperation with other State Agencies, legislation, and by encouragement of private groups and enterprises.

**PROBLEM 7.** Angler demand, use-rates, and harvest rates of remote brook trout lakes are unknown. Such knowledge would be useful to determine the effectiveness of current zoning and the need to zone additional waters as LURC Remote Ponds.

**Strategy 10.** Obtain angler counts on a sample of remote ponds as an indicator of use.

**Strategy 11.** Determine angler demand through use of the statewide angler questionnaire.

**Strategy 12.** Petition the Land Use Regulation Commission to determine the number of waters that could be zoned as Remote Ponds. Pursue the zoning of additional waters if there is a potential to do so.

**PROBLEM 8.** There is anecdotal evidence that Remote Pond zoning standards (including road construction, maintenance of barriers, use of non-permitted vehicles, etc.) are frequently violated.

**Strategy 13.** Determine the causes and extent of Remote Pond zoning standard violations.

**Strategy 14.** Develop and implement programs to remediate any problems identified.

**PROBLEM 9.** Despite consolidation of brook trout regulations into four classes effective 1996, many brook trout waters still retain non-conforming regulations, resulting in unnecessarily complicated law books and in angler consternation.

**Strategy 15.** Unless there is biological justification to the contrary, assimilate non-conforming brook trout regulations into the most appropriate conforming class. Create new classes of regulations for waters that currently have regulations significantly more restrictive than the current Class I regulation (2 trout, 12 inch-minimum length limit; only 1 may be greater than 14 inches).

**PROBLEM 10.** Expanding ranges of competitor and predator fish species compromise the goal of maintaining existing brook trout habitat.

**Strategy 16.** Educate the public as to the detrimental effects of warmwater fish introductions on brook trout and other coldwater fish species.

**Strategy 17.** Investigate the feasibility of increasing the level of enforcement of existing rules.

**Strategy 18.** Coordinate and combine the educational and enforcement activities in Strategies 17 and 18 with those designed to prevent the introduction of exotic aquatic plants.

**PROBLEM 11.** Existing staff and financial resources are inadequate to adequately monitor Maine's brook trout populations in lakes and ponds(see also **PROBLEM 5** under Brook Trout in Streams).

**Strategy 19.** Seek sufficient staffing and financial resources to fully implement the brook trout management plan(see also Strategy 10 under Brook Trout in Streams).

## BROOK TROUT IN STREAMS

**GOAL FOR RIVERS AND STREAMS:** Maintain fishing opportunities for brook trout in 22,250 miles of flowing water.

1. Protect/restore/enhance brook trout habitat.
2. Maintain the integrity of self-sustaining brook trout populations.
3. Maintain brook trout populations at about 1,350 fish of all sizes for each stream mile classified as permanent brook trout habitat; 5 to 7% of the late summer population should exceed 6 inches.
4. Maintain harvest levels at or below 50% of legal fish available pre-season. This equates to no more than the total number of legal fish remaining by mid-summer.
5. Provide for a variety of fishing opportunities.
  - A. Maintain size quality in trophy management waters.
  - B. Increase the number of fishing opportunities for large fish.
  - C. Maintain and/or increase the number of remote fishing opportunities.
  - D. Provide for more youth fishing opportunities.
  - E. Increase opportunities in urban areas.
6. Maintain fishing quality at 2.5 legal trout caught and 0.75 harvested per angler day, and an average length of 10 inches.
  - A. General management waters: meet angler expectation of a catch rate 5 to 10 brook trout per angler day ranging from 6 to 10 inches long.
  - B. Trophy management waters: meet angler expectation of the presence of brook trout with a minimum size of 15 inches and/or 2 pounds.

**Capability:** Brook trout stream habitat is abundant on a statewide basis. Although lack of habitat does not limit overall goals and objectives, there is evidence that some habitat has been degraded by human activities such as agriculture, timber harvesting, and development. There is less suitable stream habitat in the southern coastal plain, which includes portions of Regions A and B. The majority of streams supporting native brook trout populations statewide are biologically unproductive and do not normally produce trout of exceptional size; thus, there is limited potential statewide for creating quality brook trout fisheries through the imposition of restrictive regulations.

**Feasibility:** Harvest rates have not, to date, reduced brook trout abundance or opportunity statewide. Some continued loss or degradation of stream habitat is expected to occur as a result of development, including road construction, and agricultural practices. Restrictive regulations intended to improve fishing quality on many of the State's quality brook trout streams were imposed in 1996. The success of these regulations in increasing the average fish size will be evaluated over the next planning period.

**Desirability:** The stated goals and objective, if met, will maintain the existing brook trout stream fishery overall; maintain or increase the number of remote fishing opportunities; provide for more youth fishing opportunities; and improve fishing quality where growth potential occurs.

**Possible Consequences:** If special regulations are successful in improving fishing quality in streams capable of growing larger-than-average brook trout, there may be an increase in demand, as well as in use-opportunity. These fisheries are expected to attract non-consumptive and trophy anglers and, in doing so, may displace some of the more traditional anglers. Increased demand may also result in crowding and associated degradation of the aesthetic angling experience on some waters.

## **BROOK TROUT IN STREAMS MANAGEMENT PROBLEMS AND STRATEGIES IN ORDER OF PRIORITY**

**PROBLEM 1.** There is a lack of detailed information on the quantity and quality of brook trout habitat, angler demand, harvest, and angling quality of both wild and stocked brook trout stream fisheries.

**Strategy 1.** Continue an effort initiated during the last planning segment to classify brook trout population estimates by stream type in order to more accurately correlate habitat and brook trout abundance.

**Strategy 2.** Complete the statewide stream inventory files to determine the quantity and quality of brook trout habitat statewide.

**Strategy 3.** Compile statewide summaries of voluntary data for brook trout streams to estimate harvest and angling quality.

**Strategy 4.** Initiate a systematic statewide sampling regime for estimating angler use, harvest, and fishing quality on brook trout streams.

**Strategy 5.** Determine the extent of stream degradation, habitat loss and potential for restoration through comprehensive stream surveys.

**PROBLEM 2.** Restricted public access limits use opportunity on some streams, as does the fact that some streams are unnecessarily closed to fishing.

**Strategy 6.** Improve access to trout streams by purchase, negotiation, easement, or gift. Encourage other state agencies, private groups or enterprises to work toward acquisition of new access and protection of existing access.

**Strategy 7.** Investigate the feasibility of opening to fishing those streams that are currently closed in order to increase use opportunity, assuring that the regulations imposed are adequate to protect the fisheries from overharvest or degradation. Specifically, the intent of the regulations would be to minimize or eliminate harvest, maintain spawning and nursery function, yet providing angling opportunity.

**PROBLEM 3.** Environmental degradation from streamside cutting, development, and pesticide/herbicide application threatens some stream fisheries.

**Strategy 8.** Continue cooperation with other state and federal agencies charged with evaluating and enforcing these areas of degradation. Support legislation intended to minimize or eliminate specific environmental risks. Inform the public and encourage interest and participation in addressing these issues.

**PROBLEM 4.** The degree of genetic diversity and heterozygosity within Maine's wild riverine brook trout populations has not been evaluated. Therefore, it is not possible to determine either their uniqueness or the degree to which they should receive regulatory protection.

**Strategy 9.** Determine the genetic diversity of Maine's wild riverine brook trout populations by collecting and analyzing drainage-wide genotype samples from one of the seven major river drainages selected for its abundance of wild brook trout populations.

**PROBLEM 5.** Existing staff and financial resources are inadequate to adequately monitor Maine's brook trout populations in rivers and streams(see also **Problem 11** under Brook Trout in Lakes).

**Strategy 10.** Seek sufficient staffing and financial resources to fully implement the brook trout management plan(see also Strategy 19 under Brook Trout in Lakes).

## **APPENDIX A**

## **COLDWATER WORKING GROUP INPUT BROOK TROUT MEETING SUMMARY**

### **Issues:**

- ✓ Illegal smelt introductions.
- ✓ Are large fish necessary for spawning?
- ✓ Management of “stunted” populations.
- ✓ Habitat protection!
- ✓ Protection of the integrity of native stocks.
- ✓ Habitat degradation: Habitat improvement.
- ✓ Access: public access necessary but ease of access can produce management problems in remote waters.
- ✓ DIFW fishery management program: inadequate staff numbers and finances!
- ✓ Beaver management?
- ✓ Adequacy of LURC protection of headwater streams?
- ✓ Possible impacts of outboard motor emissions on fish and/or the fishery?
- ✓ Insufficient number of remote ponds.
- ✓ Inadequate enforcement of LURC regulations on remote ponds.
- ✓ Educate the public re the benefits of remote ponds.
- ✓ Invest more staff and money into the fishery management program
- ✓ Implement trophy management on as many wild brook trout populations as possible.\*
- ✓ Consider stocking large (14-16 inch) brook trout to provide a put-and-take fishery in urban areas.\*

\* *These issues were obtained from written input by Gary Corson.*

### **Goals and Objectives:**

**LAKES AND PONDS: Maintain? (enhance?) the present? amount and distribution of principal fisheries for brook trout in 1,135 lakes and ponds (403,396 acres) as per present distribution (map attached).**

1. *Protect/enhance brook trout habitat.*
2. *Maintain the integrity of self-sustaining brook trout populations.*
  - A. Native<sup>1</sup> populations in 424 lakes and ponds (81,492 acres).
  - B. Wild<sup>2</sup> populations in 185 lakes and ponds.
  - C. Increase the population density of wild brook trout.
3. *Provide for a wide variety of fishing opportunities.*
  - A. Maintain size quality in “Trophy Management Waters”.
  - B. Increase the number of fishing opportunities for “large fish”.
  - C. Maintain &/or increase the number of “remote” fishing opportunities.
  - D. Provide for more youth fishing opportunities.
  - E. Increase opportunities in Urban areas.
4. *Maintain statewide fishing quality<sup>3</sup>:*
  - A. General management waters = 5-6 brook trout/angler-day ranging from 10 to 15 inches long.
  - B. Trophy management waters = no catch rates other than knowledge that some fish of this size, or larger occur in one of these waters; size  $\infty$  18 inches/3 pounds.

**RIVERS AND STREAMS: Maintain fishing opportunities for brook trout in 22,250 miles of flowing water.**

1. *Protect/enhance brook trout habitat.*
2. *Maintain the integrity of self-sustaining brook trout populations*
3. *Maintain brook trout populations at about 1,350 fish of all sizes for each stream mile classified as permanent brook trout habitat. 5 to 7% of the late summer population should exceed 6 inches.*
4. *Provide for a wide variety of fishing opportunities.*
  - A. Maintain size quality in "Trophy Management Waters".
  - B. Increase the number of fishing opportunities for "large fish".
  - C. Maintain &/or increase the number of "remote" fishing opportunities.
  - D. Provide for more youth fishing opportunities.
  - E. Increase opportunities in Urban areas.
5. *Maintain statewide fishing quality<sup>3</sup>:*
  - A. General Management Waters = 5-10 brook trout/angler-day ranging from 6 to 10 inches long.
  - B. Trophy Management Waters, = no specific catch rates other than knowledge than some fish of this size, or larger occur in one of these waters; size  $\infty$  15 inches/2 pounds.

<sup>1</sup>Native populations are self-sustaining populations of brook trout that have never been stocked (with brook trout).

<sup>2</sup>Wild populations are self-sustaining populations of brook trout that have been established or supplemented by a stocking program sometime in the past.

<sup>3</sup>For the purposes of this document, fishing quality is the catch-rate and fish size expected by experienced anglers on a good fishing day.

## **APPENDIX B**

## **Brook Trout Fishing Quality Management Categories<sup>14</sup>**

Provide fishing quality opportunities with the following catch and size standards (All fishing quality performance standards are based on “**an experienced angler on a good fishing day**”):

### **IN LAKES AND PONDS**

- I. Management Category A: meet angler expectation of the presence of brook trout with a minimum size of 18- inches and/or 3-pounds. These fisheries could be based on wild and/or stocked populations.
- II. Management Category B: meet angler expectation of a catch rate of 5 to 10 brook trout per angler day ranging from 10 to 15-inches long. These fisheries could be based on wild and/or stocked populations.
- III. Management Category C: meet angler expectation of a catch rate of 5 to 10 brook trout per angler day ranging from 7 to 10-inches long. These fisheries could be based on wild and/or stocked populations.
- IV. Management Category D: wild brook trout populations wherein few, if any, brook trout exceed 7-inches.

### **IN RIVERS AND STREAMS**

- I. Management Category A: meet angler expectation of the presence of brook trout with a minimum size of 15 inches and/or 2 pounds. These fisheries could be based on wild and/or stocked populations.
- II. Management Category B: meet angler expectation of a catch rate of 5 to 10 brook trout per angler day ranging from 8 to 12 inches long. These fisheries could be based on wild and/or stocked populations.
- III. Management Category C: meet angler expectation of a catch rate of 5 to 10 brook trout per angler day ranging from 6 to 8 inches long. These fisheries could be based on wild and/or stocked populations.
- IV. Management Category D: wild brook trout populations wherein few, if any, brook trout reach 6-in.

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<sup>14</sup> Final management categories based on 1-8-2004 revision.